2023 SUPER MOCK BIOLOGY 2

PAPER 2 1 hour 40 minutes

ESSAY

[70 marks]

Answer **two** *questions* **only** *from this section.*

Credit will be given for clarity of expression, orderly presentation of material.

All questions carry equal marks.

1. (a) What is classification of living things?

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……

[2 marks]

(b) State four ways each by which the following groups of organisms are of economic importance in their habitats

(i) fungi

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(ii) plants

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[8 marks]

(c) Complete the table below by stating five major phyla of the kingdom Animalia and give one example of each.

Phyla of kingdom Animalia	Example

[10 marks]

2. (a) Complete the table below

Element	Function in plants	Effect of deficiency in plants
Iron		
Molybdenum		
Potassium		
Copper		
Nitrgen		

[10 marks]

(b) Name three classes of organic foods which are essential constituents in the diet of a mammal

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[3 marks]

(c) State two roles each of the following structures of the digestive system in humans

(i) buccal cavity

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(ii) duodenum

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(iii) stomach

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(d) Name the end product of adding dilute hydrochloric acid to sucrose

[1 mark]

3. Relationships I, II, III, IV, and V exist among some organisms in an ecosystem
Use them to answer questions 3(a) to 3(e).

I: Organisms A grows on dead organism B

II: Organism C feeds on remnants of food left by organism D without affecting organism D

III: Organism E provides shelter for organism F while organism F transports organism K

IV: Organism G kills organism B for food

V. Organism H feeds on organism J causing organism J a disease.

(a) Name the type of relationship in

I. ……

II. ……

III. ……..

IV. ……..

V. ……

[5 marks]

(b) In relationship IV, what is the biological term for each of organisms B and G?

(i) B ……

(ii) G ……..

(c) Name one example each of organisms B to J

B ……

C ……

D ……

E ……..

F ……

G……

H ……

J……...

[8 marks]

(d) (i) Name the relationship that is most beneficial to the ecosystem

……

[1 mark]

(ii) Give one reason for the answer in 3 (d) (i)

……

(e) (i) Give two examples of organism A

……

……

[2 marks]

(ii) Name the group to which organism A belongs.

……

[1 mark]

4. (a) Complete the following punnett squares of a dihybrid cross between two rats. One has black fur (BB) and short tail (tt), the other has brown fur (bb) and tail (TT).

X		Bt		
bT				

[12 marks]

(b) How many of the offspring will have:

(i) black fur and short tail ……..

(ii) brown fur and long tail …….

(iii) black fur and long tail …….

(iv) brown fur and short tail ……...

[4 marks]

(c) If there were twenty (20) chromosomes in the leaf cell of a plant, how many chromosomes would be in each of the following cells of the plant?

(i) pollen grain ……

(ii) guard cell ……..

(iii) ovule ……

(iv) root cell ……..

[4 marks]

SECTION B

Answer **the questions** *in this section*

5. (a) (i) What are sense organs? ……

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……

……

[3 marks]

(ii) Name three sense organs that respond to the stimulus of chemicals

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……..

[3 marks]

(b) List three animals each that exhibit the following courtship behaviours

(i) territoriality

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(ii) Pairng

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(c) (i) State one similarity between the eggs of toads and the eggs of birds

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…….. [1 mark]

(ii) State three difference between the eggs of toads and the eggs of birds

Egg of toads	Eggs of birds

[3 marks]

(d) Complete the table below by listing four organisms involved in the nitrogen cycle and state one role each of the organisms.

Four organisms involved in the nitrogen cycle	One role of organism

[8 marks]

(e) Complete the table below by naming two types of heterotrophic modes of nutrition in animals and give two examples each of the organisms that carry out the modes of nutrition

Two modes of heterotrophic nutrition	Two examples of organisms that carry outmode of nutrition

[6 marks]

END OF PAPER